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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/710,553	07/20/2004	Jeremy E. Morin	3901	4359

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EXAMINER	
CORDRAY, DENNIS R	
ART UNIT	PAPER NUMBER
1791	

MAIL DATE	DELIVERY MODE
04/29/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/710,553	MORIN ET AL.	
	Examiner	Art Unit	
	DENNIS CORDRAY	1791	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *29 May 2007*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-23* is/are pending in the application.

4a) Of the above claim(s) *1-13* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *14-23* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

Applicant's amendments, filed 5/18/2007, have overcome all outstanding rejections. Therefore, the rejections have been withdrawn. However, upon further consideration, a new grounds of rejection are made in as detailed below.

Claim Rejections - 35 USC § 102 and 103

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 14-16, 18-19 and 21are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Economy et al (6508962).

Economy et al discloses a carbon fiber ion exchanger in the form of a non-woven fabric, paper or mat. In some embodiments, the paper comprises pre-treated mineral or ceramic fibers (silicon carbide, SiC fibers are specifically mentioned), the pre-treatment comprising coating the fibers with a resin, crosslinking the resin, heating the coated fibers to carbonize the resin and exposing the coated fibers to an etchant to activate them (Abs; col 1, lines 11 and 55-67; col 2, lines 37-67; col 3, lines 1-5 and 41-60). The crosslinked resin forms a matrix around the fibers. The length of the fibers is from 0.01 mm to 100 m; the diameter is from 100 Å to 1 mm; and the aspect ratio is at least 10. The disclosed length and diameter embody aspect ratios that significantly overlay the claimed range (col 3, lines 6-13). The coating resin is selected from well known thermoplastic polymers, phenolic resins and polyvinyls (col 3, lines 47-54). Cationic

polymers, anionic polymers and PAE are not explicitly recited by Economy et al but are crosslinkable thermoplastic polymers well known in the art and, at least, would have been obvious to one of ordinary skill in the art.

Economy et al does not disclose adding the fibers to an aqueous pulp slurry and forming the pulp slurry into a paper. Economy et al discloses that the substrate fibers can include any material that can tolerate the conditions necessary to form the activated coating, and recites that natural fibers (e.g.-cellulose) can also be used. Making paper by dispersing fibers into a slurry, thereby forming an aqueous pulp slurry, and forming paper therefrom are an inherent steps in a standard papermaking process or, at least, would have been obvious to one of ordinary skill in the art.

Economy et al does not disclose the modulus of the fibers. The fibers of Economy et al are substantially identical to the claimed fibers, thus have the claimed modulus because, where the claimed and prior art apparatus or product are identical or substantially identical in structure or composition, a *prima facie* case of either anticipation or obviousness has been established. *In re Best*, 562 F.2d 1252, 1255, 195 USPQ 430, 433 (CCPA 1977). In other words, when the structure recited in the reference is substantially identical to that of the claims, the claimed properties or functions are presumed to be inherent. For similar reasons, the resin used to treat the fibers is hydrophilic.

Claims 17, 22 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Economy et al in view of Wilson et al (6155432).

The disclosure of Economy et al is used as above. Economy et al does not teach all of the specific claimed species of fibers.

Wilson et al teaches that conventional inorganic fibers used to make resin coated and carbonized fiber products include rayon based carbon fibers and ceramic fibers, such as silicon carbide, silicon nitride, aluminosilicate, silica, glass, alumina, ceria, zirconia and the like (col 4, lines 27-40; col 8, lines 14-19).

The art of Economy et al, Wilson et al and the instant invention is analogous as pertaining to methods of making paper products by coating inorganic fibers with resin and carbonizing the resin. It would have been obvious to one of ordinary skill in the art at the time of the invention to use any of the claimed kinds of fibers in the process of Economy et al in view of Wilson et al as a conventionally known inorganic fiber and a functionally equivalent option.

Claims 14-19 and 21-23 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Wilson et al (6155432).

Wilson et al teaches a filter paper having a high degree of mechanical integrity and stiffness, and a method of making the filter paper. In one embodiment, the filter paper is made by a conventional papermaking method comprising mixing inorganic fibers, inorganic fiber whiskers and organic binder to form a slurry in water, filtering the slurry and drying at a sufficient temperature to fuse the resin, and optionally carbonizing the carbonizing the binder and/or depositing a layer of pyrolytic carbon on the surface of the filter paper (Abs, col 3, lines 62-65; col 4, lines 27-40 and 63-65; col 6, lines 11-13

and 26-27; col 7, lines 11-22). The fibers are coated with a fused matrix of the organic binder. A suitable organic binder or resin is a phenolic resin (col 7, lines 24-35). The fibers and whiskers can be one or a mixture of carbon, silicon carbide, alumina and others (col 5, lines 27-40). The fibers are conventional and have lengths from about 1 to about 15 mm and a diameter from about 3 to about 20 microns; the whiskers have lengths from about 5 to about 2000 microns and a diameter from about 0.03 to about 5 microns (col 5, lines 11-24). The length and diameter ranges embody aspect ratios that overlay the claimed range.

Wilson et al does not disclose the modulus of the fibers. The fibers of Wilson et al are substantially identical to the claimed fibers, thus have the claimed modulus for reasons given above. For similar reasons, the resin used to treat the fibers is hydrophilic.

Claims 14-16 and 18-20 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Greinecker et al (4405744) as evidenced by the R.T. Vanderbilt Company ("Filler Minerals Reference, A Guide to Filler Properties and Uses").

Greinecker et al discloses a method of making paper, card or board by adding a pretreated filler to a papermaking slurry and forming paper. The pretreatment comprises coating the filler with a hydrophilic polyacrylamide and crosslinking the polymer. The polymer can be anionic or cationic (Abs; col 1, lines 6-9; col 2, lines 35-68; col 3, lines 1-2; col 4, lines 12-32). The filler can be a finely divided clay or kaolin

(col 2, lines 25-32). Kaolin is a well known plate-like clay that has a median particle size ranging from about 0.2 microns (thus is a nanoplatelet) up to about 4.8 microns (if evidence is needed, see the report "Filler Minerals Reference, A Guide to Filler Properties and Uses," tables on pages 1 and 4). The earliest publication date for the referenced publication is 7/20/2004; however, the reference is cited as evidence of a factual characteristic of a prior art material, kaolin, thus is proper per MPEP 2124.

A paper comprising the filler is disclosed (col 6, lines 23-33).

Greinecker et al does not disclose the modulus of the fibers. The clay filler of Greinecker et al is substantially identical to the claimed filler, thus has the claimed modulus for reasons given above.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DENNIS CORDRAY whose telephone number is (571)272-8244. The examiner can normally be reached on M - F, 7:30 -4:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steven Griffin can be reached on 571-272-1189. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Steven P. Griffin/
Supervisory Patent Examiner, Art Unit 1791

/Dennis Cordray/
Examiner, Art Unit 1791